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(21) International Application Number: PCT/US00/05988 (22) International Filing Date: 8 March 2000 (08.03.00) (30) Priority Data: 60/124,270 12 March 1999 (12.03.99) US (71) Applicant (for all designated States except US): HUMAN GENOME SCIENCES, INC. [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US). (71)(72) Applicant and Inventor: ROSEN, Craig, A. [US/US]; 22400 Rolling Hill Road, Laytonsville, MD 20882 (US). (72) Inventor; and (75) Inventor/Applicant (for US only): RUBEN, Steven, M. [US/US]; 18528 Heritage Hills Drive, Laytonsville, MD 20882 (US). (74) Agents: WALES, Michele, M. et al.; Human Genome Sciences, Inc., 9410 Key West Avenue, Rockville, MD 20850 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: HUMAN PROSTATE CANCER ASSOCIATED GENE SEQUENCES AND POLYPEPTIDES (57) Abstract This invention relates to newly identified prostate or prostate cancer related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "prostate cancer antigens", and to the complete gene sequences associated therewith and to the expression products thereof, as well as the use of such prostate cancer antigens for detection, prevention and treatment of disorders of the prostate, particularly the presence of prostate cancer. This invention relates to the prostate cancer antigens as well as vectors, host cells, antibodies directed to prostate cancer antigens and recombinant and synthetic methods for producing the same. Also provided are diagnostic methods for diagnosing and treating, preventing and/or prognosing disorders related to the prostate, including prostate cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of prostate cancer antigens of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and/or function of the polypeptides of the present invention.		

What Is Claimed Is:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:
- 5
- (a) a polynucleotide fragment of SEQ ID NO:X or a polynucleotide fragment of the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - (b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:Y or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - 10 (c) a polynucleotide encoding a polypeptide fragment of a polypeptide encoded by SEQ ID NO:X or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - 15 (d) a polynucleotide encoding a polypeptide domain of SEQ ID NO:Y or a polypeptide domain encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - (e) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:Y or a polypeptide epitope encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - 20 (f) a polynucleotide encoding a polypeptide of SEQ ID NO:Y or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X, having biological activity;
 - (g) a polynucleotide which is a variant of SEQ ID NO:X;
 - 25 (h) a polynucleotide which is an allelic variant of SEQ ID NO:X;
 - (i) a polynucleotide which encodes a species homologue of the SEQ ID NO:Y;
 - (j) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(i), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide
 - 30

10. The recombinant host cell of claim 9 comprising vector sequences.
11. An isolated polypeptide comprising an amino acid sequence at least
5 95% identical to a sequence selected from the group consisting of:
- (a) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (b) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone, having biological activity;
 - 10 (c) a polypeptide domain of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (d) a polypeptide epitope of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (e) a full length protein of SEQ ID NO:Y or of the sequence encoded by the
15 cDNA included in the related cDNA clone;
 - (f) a variant of SEQ ID NO:Y;
 - (g) an allelic variant of SEQ ID NO:Y; or
 - (h) a species homologue of the SEQ ID NO:Y.
- 20 12. The isolated polypeptide of claim 11, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.
- 25 13. An isolated antibody that binds specifically to the isolated polypeptide of claim 11.
14. A recombinant host cell that expresses the isolated polypeptide of claim 11.
- 30 15. A method of making an isolated polypeptide comprising:

21. The gene corresponding to the cDNA sequence of SEQ ID NO:Y.
22. A method of identifying an activity in a biological assay, wherein the method comprises:
- 5 (a) expressing SEQ ID NO:X in a cell;
- (b) isolating the supernatant;
- (c) detecting an activity in a biological assay; and
- (d) identifying the protein in the supernatant having the activity.
- 10 23. The product produced by the method of claim 20.

Glu Leu Gln Arg His Glu Leu Ser Ser Lys Leu Leu Gln Pro Leu Val
 130 135 140

Pro Arg Tyr Glu Glu Ala Leu Ser Gln Leu Glu Glu Ser Val Lys Glu
 145 150 155 160

Glu Xaa Lys Gln Arg Ala Ala
 165

<210> 982

<211> 108

<212> PRT

<213> Homo sapiens

<400> 982

Ala Asn Glu Pro Gln Phe Leu Ala Val Tyr Lys Lys Ser Leu Asn Ala
 1 5 10 15

Asn Glu Glu Phe Lys Gly Leu Phe Lys Glu Met Lys Gly Phe Pro Asn
 20 25 30

Arg Met Ile Tyr Ser Glu Glu Thr Asn Asn Gly Ile Ser Glu Thr His
 35 40 45

Asn Leu Lys Pro Asn Leu Glu Asn Met Leu Cys Thr Lys Thr Thr Ala
 50 55 60

Ser Ala Ser Ser Leu Ile Leu Thr Phe Phe Asn Arg Tyr Leu Leu Asn
 65 70 75 80

Cys Pro Val Lys Arg Cys His Asn Ala Gln Tyr Cys Lys Gln Gln Val
 85 90 95

Cys Ile His Glu Ala Phe Ile His Ser Gly Val Tyr
 100 105

<210> 983

<211> 150

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (150)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 983

Phe Ser Leu Ser Leu Ser Met Thr Pro Gln Leu Leu Leu Ala Leu Val
 1 5 10 15
 Leu Trp Ala Ser Cys Pro Pro Cys Ser Gly Arg Lys Gly Pro Pro Ala
 20 25 30
 Ala Leu Thr Leu Pro Arg Val Gln Cys Arg Ala Ser Arg Tyr Pro Ile
 35 40 45
 Ala Val Asp Cys Ser Trp Thr Leu Pro Pro Ala Pro Asn Ser Thr Ser
 50 55 60
 Pro Val Ser Phe Ile Ala Thr Tyr Arg Leu Gly Met Ala Ala Arg Gly
 65 70 75 80
 His Ser Trp Pro Cys Leu Gln Gln Thr Pro Thr Ser Thr Ser Cys Thr
 85 90 95
 Ile Thr Asp Val Gln Leu Phe Ser Met Ala Pro Tyr Val Leu Asn Val
 100 105 110
 Thr Ala Val His Pro Trp Gly Ser Ser Ser Ser Phe Val Pro Phe Ile
 115 120 125
 Thr Glu His Ile Ile Lys Pro Asp Pro Pro Glu Gly Val Arg Leu Ser
 130 135 140
 Pro Leu Ala Glu Arg Xaa
 145 150

<210> 984

<211> 158

<212> PRT

<213> Homo sapiens

<400> 984

Arg Leu Cys Trp Val Lys Thr Leu Gln His Leu Leu Leu Arg Ser Thr
 1 5 10 15
 His Lys Asp Gln Val Gln His Arg Gly Leu Gly Thr Ser Leu Ala Ser
 20 25 30
 Gly Pro His Leu Thr Val Arg Gln Gln Leu Pro Ser Pro Ala Met Cys
 35 40 45
 Leu Leu Ser Gly Ser Ser Cys Leu Lys Leu Thr Ser Thr Phe Phe Pro
 50 55 60
 Asp Gly Gln Val Ala Glu Gly Pro Ala Ile Ser Val Ala Cys Cys His